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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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David L. Hagen

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EXAMINER

SOOHOO, TONY GLEN

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

07/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,191	Applicant(s) HAGEN ET AL.	
	Examiner Tony G. Soohoo	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 56-97 is/are pending in the application.
- 4a) Of the above claim(s) 60-64 and 84-95 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 56-59, 65-83, 96 and 97 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 60-62; 63-64, and 84-95 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a provisionally non-elected species or an invention non-elected without traverse, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/13/2007.

2. The elected species was elected to species b2 the use of a high voltage power supply

3.

Claim interpretation

4. The NEWLY AMENDED independent claim states in the last paragraph "the special locations of areal density, size, and orientation of the orifices **are configured** to deliver at least one of a prescribed non-uniform distribution." Whereby the "configured to deliver at least one of a prescribed non-uniform ... distribution" is directed to the an effect of the location, size ,density and orientation of the orifices, and is a dependent effect in response to the type of fluids, pressures, and temperature effects passing through the orifices. "the spatial location" of the orifice configuration is broadly vague in scope, it is noted that any provision of locations of orifices during the construction of a device is read to encompass an active choice by the builder in archiving a design parameter and a desired distribution effect in a prescribed manner in consideration of the function.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 56-59, 65-83, 96-97 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The **apparatus** claims are replete with the recitation of the device “**being configured**” or “**are configured**” to produce a specific functional and fluid effect. The instant claims are apparatus claims to a structure and not to a method of manipulation of fluid distribution. The claims fail to specifically point out and distinctly claim structural subject matter is being offered for patent protection, in particular to the actual features of the orifices which produces the recited effects. Accordingly, the meets and bounds of the structure and its structural configuration of the orifices of the fluid contactor can not be positively determined. Thus the meets and bound of what structure applicant considers as the invention is unclear and vague.

8. In order to further prosecution, Absent any particular claim to the specific relative spacing of the orifices upon the fluid contactor, the claims have been examined as best understood that a non-uniform distribution of orifices in a fluid delivery system is capable of producing the broadly recited effects of the flow distribution. Claims to "a configuration" does not claim any particular structure of an set of orifices. Any reference which shows a set of orifices inherently shows "a configuration".

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

10. Claims 56-59, 73-76, 78-83, and 96-97 are rejected under 35 U.S.C. 102(b) as being anticipated by Dobbeling et al 6183240.

11. The instant claim requires

- a. a fluid delivery system
- b. a duct
- c. a fluid contactor
 - i. an inlet to the fluid contactor to the fluid delivery system
 - ii. a plurality of outlet through the duct.

The Dobbeling (et al) reference discloses a fluid delivery system having a fluid mixing region at 8 for a flow a secondary fluid 12 ; a 1st fluid flow paths for a primary fluid 7, formed by a two fluid contactor conduit manifolds to feed into air ducts 5 and 6 formed by a thin walled conical and curvilinear structure between 1 and 2. A desired flow distribution of air is provided by a plurality of outlet orifices 32 and 19, 20, which as seen, is non-uniform in distribution across the flow region since the outlets are peripheral and differ in number along the distribution region. Note that the duct appears to be formed from a conical, curved, thin walled tubular member extending about the flow path of the 2nd flow and has different curvature radii along the length of the cone. With regards to the non-

uniform distribution, note that the orifices 34 and 19 in figure 4 are spatially disposed in a non uniform pattern. With regards to the mass flow rate volumes of flow, the flow rates provided of the 1st and 2nd flows are dependent upon the flow pressures operated by the device and does distinguish the in a structural sense.

12. Claims 56-59, 73-83 and 96-97 are rejected under 35 U.S.C. 102(b) as being anticipated by McClintock 3734111 .

13. The instant claim requires

- d. a fluid delivery system
- e. a duct
- f. a fluid contactor
 - iii. an inlet to the fluid contactor to the fluid delivery system
 - iv. a plurality of outlet through the duct.

The McClintock reference discloses a fluid delivery system having a fluid mixing region within 1 for a flow a secondary fluid (arrow from right to left) ; a 1st fluid flow path (pointing down arrow) for a primary fluid 7, formed by a contactor conduit manifold to feed 2, and 5, by a thin walled housing with curvilinear structure 2, 5, 4. The manifold feed openings are non-uniform in distribution across the flow region since the outlets 3 are lie across and about the contactor conduit manifold 2 and differ in number and spacing distributed along the surface of the manifold.

he structural device discloses all of the recited structural subject matter and is considered capable to function in a desired flow distribution of 1st fluid is provided by a plurality non-uniform spaced orifices 3, and on 5 or 4, in any distribution.

Note that the duct appears to be formed from a conical, curved, thin walled tubular member extending into the flow path of the 2nd flow and has different curvature radii along the length of the cone 4 or curvature in the hemisphere 5 or cylinder 2. With regards to the mass flow rate volumes of flow, the flow rates provided of the 1st and 2nd flows are dependent upon the flow pressures operated by the device and does distinguish the in a structural sense.

14. Claims 56-59, 70, 72-75, 81-83 and 96-97 are rejected under 35 U.S.C. 102(b) as being anticipated by Meenan 4273527 .

15. The instant claim requires

- g. a fluid delivery system
- h. a duct
- i. a fluid contactor
- v. an inlet to the fluid contactor to the fluid delivery system
- vi. a plurality of outlet through the duct.

The Meenan reference discloses a fluid delivery system having a fluid mixing region 28, for example figure 1, a flow a secondary fluid; a 1st fluid flow path for a primary fluid 7, provided by a thin walled curvilinear tubular contactor

conduit manifold 12 . A desired flow distribution of 1st fluid is provided by a plurality non-uniform spaced orifices 3, and on 5 or 4 across the circumference of the contactor manifold and does not uniformly provide orifices at the radial cross section center of the flow zone . Note that the duct appears to be formed from a conical, curved, thin walled tubular member extending into the flow path of the 2nd flow and has different curvature radii along the length of the cone 4 or curvature in the hemisphere 5 or cylinder 2. With regards to the mass flow rate volumes of flow, the flow rates provided of the 1st and 2nd flows are dependent upon the flow pressures operated by the device and does distinguish the in a structural sense.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 65-67 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meenan 4273527 in view of Cole 4176637.

The Meenan reference discloses all of the recited subject matter as required by the claims with the exception of a high voltage power supply.

The reference to Cole teaches in the art of air/fuel mixing of the desire to further process flow with an electrically charged electrode with high DC voltage potential, (column 4, line 36, line 42) so that an electrostatic field is provided so that the fuel fluid is further dispersed, figures 2, or 3, column 2, lines 39-65, including within boiler, and furnaces, line 68.

In view of the showing by the Cole reference within the environment of burners in air fuel mixing and combustion art, and in light of the knowledge gleaned by the Cole reference, it would have been obvious to a person having ordinary skill in the art to further provide for the burner device of Meenan with the added structural feature of a high voltage power supply and electrode so that it may further produce the advantageous effect of further dispersion of the fuel in the air fuel mixture for a more complete of combustion, column 2, lines 52-57.

With regards to a flexible manifold, it is known in the fluid conduit pipes and hoses, to provide conduits of flexible or rigid materials, dependent upon the ease of construction in balance with strength. Accordingly, it would have been obvious to a person having ordinary skill in the art to further modify the manifold structure to be made of a flexible material such as thin copper so as the manifold may be more easily constructed.

18. Claims 68-69, 76-80, are rejected under 35 U.S.C. 103(a) as being unpatentable over Meenan 4273527 in view of Dobbeling et al 6183240.

The Meenan reference discloses all of the recited subject matter required by the claims with the exception of the orifices sizes, density and placement (being non-uniform) of the combustion air nozzles 26.

The reference to Dobbeling (et al) shows that in the art of burner devices the nozzle feed of combustion air nozzle placement, diameter and shape is an effective variable in the introduction of air so as to affect the in the flow stability of the burner, column 2 lines 35 through column 3, lines 6.

In view of the evidence of the state of knowledge in the art of air nozzle introduction into a burner as shown by the Dobbeling (et al) ref, and gleaned by the knowledge of the prior art (Dobbeling, column 3, lines 3-6), it would have been obvious to a person having ordinary skill in the art to modify and optimize the size, spacing and distances of the nozzles to the recited values of the claims so as to take in consideration of the boundary conditions of the particular usage of the burner so as to provide for a more stable burner.

Response to Arguments

19. Applicant's arguments filed 3/6/2008 have been fully considered but they are not persuasive. Applicant argues to the function and effect of the fluid effects within each of the references. However applicant has not shown any structural difference or particular structural limitation distinguishing the orifices of the prior art from that of the instant claims. Applicant has pointed to the wherein clause which is directed to the functional

effect of to be produced by the orifices, however has not persuasively pointed any structural difference in a positive structure.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. The prior art made of record previously cited and not relied upon is considered pertinent to applicant's disclosure. The following disclose delivery duct which have orifices which are configured to provide a desired introduction of fluid: Seidl 2883948, Fleischli et al 5380088, Chyou et al 5658358, and Ruscheweyh et al 6779786.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G. Soohoo whose telephone number is (571) 272 1147. The examiner can normally be reached on 8AM-5PM, Mon-Thurs.

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797

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Art Unit 1797